

# OKLAHOMA CITY AIR LOGISTICS CENTER

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*TEAM TINKER*



**U.S. AIR FORCE**

## HVOF APPLICATIONS IN AF ENGINES

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# SYNOPSIS



**AFMPC**

**ALTHOUGH HVOF IS A NEW PROCESS TO MATURE AIR FORCE ENGINES, ITS APPLICATION IS NEVERTHELESS GROWING. ALTHOUGH THE PROCESS AND PROGRESS OF THIS INSERTION VARIES GREATLY FROM ENGINE PROGRAMS, IT IS EVIDENT THE DESIGNERS AND MAINTAINERS OF ENGINES FORESEE HVOF AS AN ATTRACTIVE COATING PROCESS. TO THAT END, THE AIR FORCE, WITH PEWG SUPPORT, IS PURSUING AND MAKING PROGRESS IN VALIDATING APPLICATIONS AND ESTABLISHING CAPABILITY. THIS BRIEFING SUMMARIZE WHERE WE ARE AT TODAY AND WHERE WE ARE GOING**



# ENGINES WITH HVOF APPLICATIONS

**AFMC**

- **TF33**
  - Bearing journals
  - PEWG supported effort
  - Engine test validated
  - Tinker qualification in work
  
- **F101/F110/F118**
  - Disk dovetail, shaft journal, fan blade platform
  - CIP repair effort
  - Currently out sourced
  - Tinker qualification in work



# ENGINES WITH HVOF APPLICATIONS



- **F100**
  - **Drum rotor, oil wetted bearing compartments**
  - **CIP repair effort**
  - **Engineering validation of drum rotor via similarity to TF33**
  - **Engine test required for oil wetted application**
  - **Planned for Tinker repair**



# ENGINES WITH HVOF APPLICATIONS



- **T56**
  - Gearbox components
  - CIP repair effort
  - Engineering validation based on Joint Test Protocol
  - PBA repair workload
  - Standard Aero have HVOF capability but will need additional unit
  - Funding requirement submitted (POM)
  
- **TF39**
  - Applications based on CF6 experience proposed



# OUTLOOK



**AFMC**

- **NO LONGER AN EMERGING PROCESS**

- Choice replacement for chrome plate
- Proven next generation coating process
- Alternatives to proprietary process

**GatorGard**

**D-Gun**

- Growing in Air Force application

**Propulsion**

**Air frame**

**Accessories**



# HVOF AT TINKER



**AFMC**

- **DEVELOPMENT OF TINKER CAPABILITY**

- One booth operational
- Additional booths

Infrastructure available for  
one more booth

Dedicated booth for airfoil  
coating planned

- Grinding capability
- NDI issues



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